the intersymbol interference due to the more significant initial taps is processed with a more complex cancellation algorithm, such as a reduced state sequence estimation technique or an M-algorithm technique.

Independent Claims 1, 10 and 19-22

5   Independent Claims 1, 10 and 19-22 were rejected under 35 U.S.C. §102(b) as being anticipated by Amrany. The Examiner asserts that Amrany teaches a method (or a receiver) that processes ISI (citing Amrany col. 1, lines 43-51; par. 5, par. 7, and noting that an "equalizer compensates for ISI") due to less significant taps (citing Fig. 2, element 92) with a lower complexity algorithm (citing col. 6, last par.) using

10   tentative decisions (citing col. 6, eq. 12; Fig. 3, elements 548, 549, 546); and processing ISI due to more significant taps (Fig. 2, element 91) with a reduced state sequence estimation technique (Fig. 3, elements 545 and 546, "is a reduced state compared to 548 with 549 and 546 since it requires fewer elements").

Less (or More) Significant **Bits** are Not Less (or More) Significant **Taps**

15   The Examiner asserts that the ISI due to less significant taps, as recited in the claims of the present application, are anticipated by the less significant bits (LSBs) shown in Fig. 2, element 92, and corresponding text, and that the the ISI due to more significant taps are anticipated by the more significant bits (MSBs) shown in Fig. 2, element 91. It is noted that Amrany uses two filters in parallel (one for MSBs of each tap

20   and one for LSBs of each tap), rather than using a single filter. As shown by equation 6 of Amrany, each 24 bit filter coefficient is rewritten as a sum of MSBs and LSBs. Thus, the MSBs of **all taps** in Amrany are applied to one filter, while the LSBs of **all taps** in Amrany are applied to another filter.

The present invention, on the other hand, as set forth in each independent

25   claim, applies *all bits of the less significant taps to one processing unit* (employing a lower complexity algorithm), and *all bits of the more significant taps to another processing unit* (employing an RSSE algorithm). These processing units are not necessarily filters, e.g. the processing block employing the RSSE algorithm is not a filter, but a reduced-state sequence detector, a term well understood by those of ordinary skill in

30   the art.

Updating Filter Coefficients Does Not Suggest Tentative Decisions

The Examiner asserts that col. 6, equation 12, and elements 548, 549 and 546 of Amrany suggest canceling the ISI due to less significant taps using *tentative decisions*, as required by the claims of the present application. It is noted, however, that

5   the passages referenced by the Examiner are merely directed to updating the coefficients of the echo canceller 548 in accordance with Equation 12, which is well known to those of ordinary skill in the art. As used herein, the term "tentative decision" means a decision for the transmitted data symbol that is possibly less reliable than the final decision of the overall detector and that is used by the lower complexity cancellation algorithm to cancel

10   ISI due to less significant taps.

Echo canceller 548 is a filter that cancels echo using the LSBs of all filter taps, and echo canceller 545 is a echo canceller that cancels echo using the MSBs of all filter taps. In any case, these elements are performing echo cancellation and not equalization (processing of ISI), and they do not use tentative decisions.

15   ## Echo Canceller Requiring "Fewer Elements" Does Not Suggest RSSE

Finally, the term reduced state sequence estimation (RSSE) is a term of art that is well understood by those of ordinary skill in the art and is clearly described in the present application. Among other things, RSSE requires the processing of a received trellis-encoded or ISI-corrupted signal using a trellis, which is not mentioned, disclosed

20   or suggested by Amrany. The fact that element 545/546 has "fewer elements" than 548/549/546 has no relevance to the well understood concept of RSSE.

Thus, Amrany does not disclose or suggest "processing intersymbol interference due to *less significant taps* with a lower complexity cancellation algorithm using *tentative decisions*; and processing intersymbol interference due to *more significant*

25   *taps* with a *reduced state sequence estimation* technique," as required by independent claims 1, 10 and 22.

Similarly, Amrany does not disclose or suggest "processing intersymbol interference due to *less significant taps* with a first algorithm of first complexity; and processing intersymbol interference due to *more significant taps* with a second algorithm

30   of second complexity that is greater than said first complexity," as required by independent claims 19-21.

Independent Claims 17 and 18

The Examiner did not specifically address Independent Claims 17 and 18 in the final Office Action. Independent Claims 17 and 18 require processing the more significant taps with an M-algorithm technique. Amrany does not disclose the M-algorithm at all, including use of the M-algorithm to cancel ISI due to more significant taps, while ISI due to les significant taps is cancelled with a lower complexity equalization algorithm, as required by independent claims 17 and 18.

Thus, Amrany does not disclose or suggest "processing intersymbol interference due to less significant taps with a lower complexity cancellation algorithm using tentative decisions; and processing intersymbol interference due to more significant taps with an M-algorithm (MA) technique," as required by independent claims 17 and 18.

Dependent Claims

Dependent Claims 2-9 and 11-16 were also rejected under 35 U.S.C. § 102 as being anticipated by Amrany. Claims 2-9 and 11-16 are dependent on Claims 1 or 10, respectively, and are therefore patentably distinguished over Amrany because of their dependency from independent Claims 1 or 10 for the reasons set forth above, as well as other elements these claims add in combination to their base claim.

All of the pending claims, i.e., Claims 1-22, are in condition for allowance and such favorable action is earnestly solicited.

If any outstanding issues remain, or if the Examiner has any further suggestions for expediting allowance of this application, the Examiner is invited to contact the undersigned at the telephone number indicated below.

The Examiner's attention to this matter is appreciated.

Respectfully submitted,

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